

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 11 JAN 2006
WIPO PCT

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| Applicant's or agent's file reference TS 6449 PCT | FOR FURTHER ACTION See Form PCT/IPEA/416 | |
| International application No. PCT/EP2004/053125 | International filing date (day/month/year) 26.11.2004 | Priority date (day/month/year) 28.11.2003 |
| International Patent Classification (IPC) or national classification and IPC E21B10/42, E21B17/10, E21B10/32 | | |
| Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V. et | | |
| 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 5 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> <i>(sent to the applicant and to the International Bureau) a total of sheets, as follows:</i> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> <i>(sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</i> | | |
| 4. This report contains indications relating to the following items: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input checked="" type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application | | |
| Date of submission of the demand 28.09.2005 | Date of completion of this report 11.01.2006 | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016 | Authorized Officer Dantinne, P Telephone No. +31 70 340-  | |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/053125

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-11 as originally filed

Claims, Numbers

1-21 as originally filed

Drawings, Sheets

1/4-4/4 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 1-21 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | 1-21 |
| | No: Claims | |
| Industrial applicability (IA) | Yes: Claims | 1-21 |
| | No: Claims | |

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)
and / or
2. Non-written disclosures (Rule 70.9)

see separate sheet

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Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: US 2003/201125 A1 (RANEY RICHARD C) 30 October 2003

D2: WO 02/079604 A (ROTECH HOLDINGS LIMITED; VAN DRENTHAM-SUSMAN, HECTOR, FILIPPUS, ALEXAN) 10 October 2002

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document; see paragraph 46; fig.1):

A method of drilling out the interior of a casing extending into a borehole formed in an earth formation, the method comprising:

-lowering a drill bit ((110) for further drilling of the borehole, into the casing, the drill bit having a longitudinal axis of rotation during operation, the drill bit comprising rock cuttings means (18), at least one protection member (29) for protecting the inner surface of the casing from contact with the rock cutting means, the protection member being radially movable towards the inner surface of the casing.

- rotating the drill bit in the casing.

The subject-matter of claim 1 differs from this known method in that the protection member is adapted to remove selected material from the interior of the casing and it includes control means for applying a radially outward force of controlled magnitude to the protection member.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as to leave as little as possible remains of cement in the casing during the drill out operation without damaging the casing.

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The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:
the protection member in D1 is to protect the casing from the cutting means and to stabilise the drilling. There is no hint to use this protection member as a scraper. Although D2 discloses the use of an expandable tool to scrape the casing with a controlled force applied, this solves another problem and during other operations. It also does not mention any protection member. Therefore the skilled person would not have considered combining the teaching of both documents.

The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claim 9, which therefore also meets the requirements of the PCT with respect to novelty and inventive step.

Re Item VI

Certain documents cited

Certain published documents

| Application No Patent No | Publication date (day/month/year) | Filing date (day/month/year) | Priority date (valid claim) (day/month/year) |
|-----------------------------|--------------------------------------|---------------------------------|---|
| WO 2004/104361 | 02/12/2004 | 19/05/2004 | 21/05/2003 |